IN THE CLAIMS

Please amend the claims as follows:

1. (Original) A communication system, comprising:

an antenna with a resonant circuit, the resonant circuit including an inductive coil connected to a tuning capacitor;

means to selectively drive the resonant circuit during a transmit mode;

means to selectively receive an induced signal in the resonant circuit during a receive mode; and

means to selectively include a frequency shift canceling component in the resonant circuit to provide a first resonance frequency in the resonant circuit in the transmit mode and a second resonance frequency in the resonant circuit in the receive mode such that the first resonance frequency and the second resonance frequency are approximately equal.

2. (Original) The communication system of claim 1, wherein the means to selectively include a frequency shift canceling component in the resonant circuit includes means to selectively exclude a predetermined parallel capacitance with respect to the tuning capacitor when switching from the receive mode to the transmit mode, and to selectively include the predetermined parallel capacitance with respect to the tuning capacitor when switching from the transmit mode to the receive mode.

3. (Original) The communication system of claim 1, wherein the means to selectively include a frequency shift canceling component in the resonant circuit includes means to selectively include a predetermined series capacitance with respect to the tuning capacitor when switching from the receive mode to the transmit mode, and to selectively exclude the predetermined series capacitance with respect to the tuning capacitor when switching from the transmit mode to the receive mode.

4. (Original) The communication system of claim 1, wherein the means to selectively include a frequency shift canceling component in the resonant circuit includes means to selectively exclude a predetermined inductance from the resonant circuit of the antenna when switching from the receive mode to the transmit mode, and to selectively include the predetermined inductance from the resonant circuit of the antenna when switching from the transmit mode to the receive mode.

5. (Original) A communication system, comprising:

an antenna element having a first terminal, a second terminal and a node, the antenna element including a resonant circuit, the resonant circuit including an inductive coil connected between the first terminal and the node and a tuning capacitor connected between the second terminal and the node;

a DC blocking capacitor connected to the node of the antenna element;

an amplifier to be connected to the node of the antenna through the DC blocking capacitor during a receive mode to receive a first communication signal induced in the inductive coil of the resonant circuit;

a driver to be connected to at least one of the first terminal and the second terminal of the antenna element in a transmit mode to energize the inductive coil of the resonant circuit with a second communication signal;

a frequency shift canceling component to be selectively included in the resonant circuit of the antenna element, the frequency shift canceling component having a predetermined value; and

a transmit-receive (TR) switch responsive to a control signal to include the frequency shift canceling component in the resonant circuit when switching to a first one of the transmit and receive modes, and to exclude the frequency shift canceling component in the resonant circuit when switching to a second one of the transmit and receive modes such that a first resonance frequency of the resonant circuit during the receive mode and a second resonance frequency of the resonant circuit during the transmit mode are approximately equal.

6. (Original) The communication system of claim 5, wherein the frequency shift canceling component includes a compensation capacitor selectively connected in parallel with respect to the tuning capacitor in the receive mode.

7. (Currently Amended) ~~The communication system of claim 5,~~ A communication system, comprising:

an antenna element having a first terminal, a second terminal and a node, the antenna element including a resonant circuit, the resonant circuit including an inductive coil connected between the first terminal and the node and a tuning capacitor connected between the second terminal and the node;

a DC blocking capacitor connected to the node of the antenna element;

an amplifier to be connected to the node of the antenna through the DC blocking capacitor during a receive mode to receive a first communication signal induced in the inductive coil of the resonant circuit;

a driver to be connected to at least one of the first terminal and the second terminal of the antenna element in a transmit mode to energize the inductive coil of the resonant circuit with a second communication signal;

a frequency shift canceling component to be selectively included in the resonant circuit of the antenna element, the frequency shift canceling component having a predetermined value; and

a transmit-receive (TR) switch responsive to a control signal to include the frequency shift canceling component in the resonant circuit when switching to a first one of the transmit and receive modes, and to exclude the frequency shift canceling component in the resonant circuit when switching to a second one of the transmit and receive modes such that a first resonance frequency of the resonant circuit during the receive mode and a second resonance frequency of the resonant circuit during the transmit mode are approximately equal,

wherein:

the frequency shift canceling component includes a compensation capacitor selectively connected in parallel with respect to the tuning capacitor in the receive mode;

the compensation capacitor is connected to the node of the antenna element; and

the TR switch includes:

means to pull the first terminal and the second terminal of the antenna element to a reference potential during the receive mode; and

a transistor connected between the compensation capacitor and the reference potential, the transistor being responsive to the control signal to pull the compensation capacitor to the reference potential during the receive mode.

8. (Original) The communication system of claim 5, wherein the frequency shift canceling component includes a compensation capacitor selectively connected in series with respect to the tuning capacitor in the transmit mode.

9. (Currently Amended) ~~The communication system of claim 8,~~ A communication system, comprising:

an antenna element having a first terminal, a second terminal and a node, the antenna element including a resonant circuit, the resonant circuit including an inductive coil connected between the first terminal and the node and a tuning capacitor connected between the second terminal and the node;

a DC blocking capacitor connected to the node of the antenna element;

an amplifier to be connected to the node of the antenna through the DC blocking capacitor during a receive mode to receive a first communication signal induced in the inductive coil of the resonant circuit;

a driver to be connected to at least one of the first terminal and the second terminal of the antenna element in a transmit mode to energize the inductive coil of the resonant circuit with a second communication signal;

a frequency shift canceling component to be selectively included in the resonant circuit of the antenna element, the frequency shift canceling component having a predetermined value; and

a transmit-receive (TR) switch responsive to a control signal to include the frequency shift canceling component in the resonant circuit when switching to a first one of the transmit and receive modes, and to exclude the frequency shift canceling component in the resonant circuit when switching to a second one of the transmit and receive modes such that a first

resonance frequency of the resonant circuit during the receive mode and a second resonance frequency of the resonant circuit during the transmit mode are approximately equal,

wherein:

the frequency shift canceling component includes a compensation capacitor selectively connected in series with respect to the tuning capacitor in the transmit mode;

the compensation capacitor is connected to a first one of the first and second terminals of the antenna element, and in series with the inductive coil and the tuning capacitor; and

the TR switch includes:

means to pull a second one of the first and second terminals of the antenna element to a reference potential during the receive mode; and

a transistor connected between the reference potential and a node between the compensation capacitor and one of the inductive coil and the tuning capacitor, wherein the compensation capacitor is connected between the transistor and the first one of the first and second terminals of the antenna element, the transistor being responsive to the control signal to pull the node to the reference potential during the receive mode such that the compensation capacitor is removed from the resonant circuit during the receive mode.

10. (Original) The communication system of claim 5, wherein the frequency shift canceling component includes a compensation inductor selectively connected in series with respect to the inductive coil and the tuning capacitor in the receive mode.

11. (Original) The communication system of claim 10, wherein the compensation inductor and the inductive coil are formed on a single core.

12. (Currently Amended) ~~The communication system of claim 5,~~ A communication system, comprising:

an antenna element having a first terminal, a second terminal and a node, the antenna element including a resonant circuit, the resonant circuit including an inductive coil connected

between the first terminal and the node and a tuning capacitor connected between the second terminal and the node;

a DC blocking capacitor connected to the node of the antenna element;

an amplifier to be connected to the node of the antenna through the DC blocking capacitor during a receive mode to receive a first communication signal induced in the inductive coil of the resonant circuit;

a driver to be connected to at least one of the first terminal and the second terminal of the antenna element in a transmit mode to energize the inductive coil of the resonant circuit with a second communication signal;

a frequency shift canceling component to be selectively included in the resonant circuit of the antenna element, the frequency shift canceling component having a predetermined value; and

a transmit-receive (TR) switch responsive to a control signal to include the frequency shift canceling component in the resonant circuit when switching to a first one of the transmit and receive modes, and to exclude the frequency shift canceling component in the resonant circuit when switching to a second one of the transmit and receive modes such that a first resonance frequency of the resonant circuit during the receive mode and a second resonance frequency of the resonant circuit during the transmit mode are approximately equal,

wherein:

the inductive coil includes a center-tapped coil having a first coil portion and a second coil portion separated by a tap node, a first one of the first and second terminals of the antenna element being connected to the tap node such that a drive current flows through the first coil portion during the transmit mode;

the TR switch includes:

means to pull a second one of the first and second terminals of the antenna element to a reference potential during the receive mode; and

a transistor connected between the second coil portion and the reference potential, the transistor being responsive to the control signal to pull the second coil portion to the reference potential during the receive mode such that both the first coil portion and the second coil portion are included in the resonant circuit of the antenna element during the receive mode.

13. (Original) The communication system of claim 5, wherein the communication system is incorporated in a wireless hearing aid and is adapted to inductively communicate with inductive devices.

14. (Original) A hearing aid, comprising:

a hearing aid receiver to present sound to an ear;

a microphone system to receive acoustic signals;

an antenna element to transmit and receive inductive signals, the antenna element including:

a first terminal, a second terminal and a node; and

a resonant circuit, including an inductive coil connected between the first terminal and the node, and a tuning capacitor connected between the second terminal and the node;

a DC blocking capacitor connected to the node of the antenna element;

a frequency shift canceling component; and

signal processing circuitry connected to the microphone system to process received acoustic signals and present the processed signals to the hearing aid receiver, and connected to the antenna element to process the received inductive signals, the signal processing circuitry including a transmit-receive (TR) switch responsive to a control signal to include the frequency shift canceling component in the resonant circuit when switching to a first one of the transmit and receive modes, and to exclude the frequency shift canceling component in the resonant circuit when switching to a second one of the transmit and receive modes.

15. (Original) The hearing aid of claim 14, wherein the TR switch further includes:

a first portion to selectively connect at least one antenna terminal to a driver output during a transmit mode and to a reference potential during a receive mode;

a second portion to selectively connect an amplifier input to a node of the antenna through the DC blocking capacitor during the receive mode and to pull a node between the DC blocking capacitor and the amplifier input to the reference potential during the transmit mode.

16. (Original) The hearing aid of claim 14, wherein the frequency shift canceling component has a predetermined value calculated to replace a DC blocking capacitor value in determining a resonance frequency in the resonant circuit.

17. (Currently Amended) ~~The hearing aid of claim 16,~~ A hearing aid, comprising:

a hearing aid receiver to present sound to an ear;

a microphone system to receive acoustic signals;

an antenna element to transmit and receive inductive signals, the antenna element including:

a first terminal, a second terminal and a node; and

a resonant circuit, including an inductive coil connected between the first terminal and the node, and a tuning capacitor connected between the second terminal and the node;

a DC blocking capacitor connected to the node of the antenna element;

a frequency shift canceling component; and

signal processing circuitry connected to the microphone system to process received acoustic signals and present the processed signals to the hearing aid receiver, and connected to the antenna element to process the received inductive signals, the signal processing circuitry including a transmit-receive (TR) switch responsive to a control signal to include the frequency shift canceling component in the resonant circuit when switching to a first one of the transmit and receive modes, and to exclude the frequency shift canceling component in the resonant circuit when switching to a second one of the transmit and receive modes,

wherein the frequency shift canceling component has a predetermined value calculated to replace a DC blocking capacitor value in determining a resonance frequency in the resonant circuit, and the predetermined value of the frequency shift canceling component is calculated to further compensate for an inductance change attributable to a difference in a first current flow through the inductive coil in the transmit mode and a second current flow through the inductive coil in the receive mode.

18. (Original) The hearing aid of claim 14, wherein:

the frequency shift canceling component includes a predetermined capacitance; and

the TR switch includes a transistor to selectively exclude the predetermined capacitance from the resonant circuit of the antenna when switching from the receive mode to the transmit mode, and to selectively connect the predetermined capacitance in parallel with the tuning capacitor of the antenna when switching from the transmit mode to the receive mode.

19. (Original) The hearing aid of claim 14, wherein

the frequency shift canceling component includes a predetermined capacitance; and

the TR switch includes a transistor to selectively connect the predetermined capacitance in series with respect to the tuning capacitor of the antenna when switching from the receive mode to the transmit mode, and to selectively exclude the predetermined capacitance from the resonant circuit of the antenna when switching from the transmit mode to the receive mode.

20. (Original) The hearing aid of claim 14, wherein:

the frequency shift canceling component includes a predetermined compensation inductor; and

the TR switch includes a transistor to selectively exclude the predetermined compensation inductance from the resonant circuit of the antenna when switching from the receive mode to the transmit mode, and to selectively include the predetermined compensation inductance from the resonant circuit of the antenna when switching from the transmit mode to the receive mode.

21. (Original) A method for switching modes in a wireless communication system having a resonant circuit in an antenna element, comprising:

determining whether a trigger to switch modes has occurred; and

for one of switching from a transmit mode to a receive mode or switching from the receive mode to the transmit mode, selectively incorporating a frequency shift canceling component to compensate for a resonant frequency shift in the resonant circuit.

22. (Currently Amended) ~~The method of claim 21,~~ A method for switching modes in a wireless communication system having a resonant circuit in an antenna element, comprising:

determining whether a trigger to switch modes has occurred; and

for one of switching from a transmit mode to a receive mode or switching from the receive mode to the transmit mode, selectively incorporating a frequency shift canceling component to compensate for a resonant frequency shift in the resonant circuit,

wherein selectively incorporating a frequency shift canceling component to compensate for a resonant frequency shift in the resonant circuit includes compensating for a DC bypass capacitor that is a substantial component for determining resonance frequency in the transmit mode and a relatively insubstantial component for determining resonance frequency in the receive mode.

23. (Original) The method of claim 22, wherein selectively incorporating a frequency shift canceling component to compensate for a resonant frequency shift in the resonant circuit includes compensating for an inductance change caused by a current change through an inductive coil.

24. (Currently Amended) The method of claim [[21]] 22, wherein selectively incorporating a frequency shift canceling component to compensate for a resonant frequency shift in the resonant circuit includes connecting a predetermined capacitance in parallel with respect to the tuning capacitor of the antenna when switching from the transmit mode to the receive mode.

25. (Currently Amended) The method of claim [[21]] 22, wherein selectively incorporating a frequency shift canceling component to compensate for a resonant frequency shift in the resonant circuit includes connecting a predetermined capacitance is series with respect to a tuning capacitor of the antenna when switching from the receive mode to the transmit mode.

26. (Currently Amended) The method of claim [[21]] 22, wherein selectively incorporating a frequency shift canceling component to compensate for a resonant frequency shift in the resonant

circuit includes connecting a predetermined inductance in series with the tuning capacitor and the inductive coil when switching from the transmit mode to the receive mode.

27. (New) The communication system of claim 1, further comprising:

an external elements portion comprising the antenna, wherein the inductive coil is connected to the tuning capacitor at a signal pickup node; and

an integrated circuit portion comprising a signal processing circuit and a transmit-receive (TR) switch for switching between the transmit mode and the receive mode, wherein the integrated circuit portion comprises:

the means to selectively drive the resonant circuit during the transmit mode;

the means to selectively receive the induced signal in the resonant circuit during the receive mode, wherein the means to selectively receive includes an amplifier having an input capacitance; and

the means to selectively include the frequency shift cancelling component in the resonant circuit,

wherein the external elements portion further comprises a blocking capacitor connected to the signal pickup node for protecting the integrated circuit portion from high voltages from the antenna element in a receive mode, and wherein the TR switch of the integrated circuit portion functions to configure the antenna in series in the transmit mode and in parallel in the receive mode, and further functions to protect the integrated circuit portion from large voltages generated at the node during the transmit mode by shunting the input capacitance of the amplifier.

28. (New) The communication system of claim 5, further comprising:

an external elements portion comprising the blocking capacitor and the antenna element, wherein the inductive coil is connected to the tuning capacitor at a signal pickup node; and

an integrated circuit portion comprising a signal processing circuit, the TR switch for switching between the transmit mode and the receive mode, the amplifier, and the driver, the amplifier having an input capacitance, wherein the TR switch of the integrated circuit portion functions to configure the antenna element in series in the transmit mode and in parallel in the receive mode, and further functions to protect the integrated circuit portion from large voltages

generated at the node during the transmit mode by shunting the input capacitance of the amplifier,

wherein the blocking capacitor is adapted to protect the integrated circuit portion from high voltages from the antenna element in a receive mode.

.

29. (New) The hearing aid of claim 14, further comprising:

an integrated circuit portion and an external elements portion, the integrated circuit portion including the signal processing circuitry with the TR switch, the signal processing circuitry including an amplifier with an input capacitance, the external elements portion including the antenna element and the blocking capacitor, wherein the blocking capacitor is adapted to protect the integrated circuit portion from high voltages from the antenna element in a receive mode,

wherein the TR switch of the integrated circuit portion functions to configure the antenna element in series in the transmit mode and in parallel in the receive mode, and further functions to protect the integrated circuit portion from large voltages generated at the node during the transmit mode by shunting the input capacitance of the amplifier.

30. (New) A device for switching modes in a wireless communication system having a resonant circuit in an antenna element, comprising:

means for determining whether a trigger to switch modes has occurred; and

for one of switching from a transmit mode to a receive mode or switching from the receive mode to the transmit mode, means for selectively incorporating a frequency shift canceling component to compensate for a resonant frequency shift in the resonant circuit, wherein the means for selectively incorporating the frequency shift canceling component includes means for compensating for a DC bypass capacitor that is a substantial component for determining resonance frequency in the transmit mode and a relatively insubstantial component for determining resonance frequency in the receive mode.

31. (New) The device of claim 30, wherein the means for selectively incorporating a frequency shift canceling component to compensate for a resonant frequency shift in the resonant

circuit includes means for compensating for an inductance change caused by a current change through an inductive coil.